Paper No. 27

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

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Ex parte FRANCESCO CAROBOLANTE

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Appeal No. 1998-0295
Application No. 08/202,828

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ON BRIEF

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Before HAIRSTON, FLEMING, and BARRY, Administrative Patent Judges.

HAIRSTON, Administrative Patent Judge.

DECISION ON APPEAL

This is an appeal from the final rejection of claims 1 through 17, 19 and 21 through 24.

The disclosed invention relates to a circuit for driving current through the stator coils in motor. The circuit includes a discharge current path that can be selected when the output to the stator coils is not connected to the current drive.

Claim 1 is illustrative of the claimed invention, and it reads as follows:

1. A circuit for driving current through the stator coils in a motor comprising:

a first voltage amplifier having a first input for receiving an input signal, having a second input for receiving a feedback signal, and having an output;

a compensation circuit to compensate the output of said first voltage amplifier;

a second voltage amplifier for receiving the compensated output from said first voltage amplifier;

a means for selectively driving said stator coils responsive to the output of said second voltage amplifier; and

a selectable current path for selectively discharging current from said compensation circuit such that said compensation circuit is discharged when said means for selectively connecting the output is not connected.

The reference relied on by the examiner is:

Rhodes 4,319,173 Mar. 9, 1982

Claims 1 through 17, 19 and 21 through 24 stand rejected under 35 U.S.C. § 103 as being unpatentable over appellant's admitted prior art in view of Rhodes.

Reference is made to the brief (paper number 23), the final rejection (paper number 5) and the answer (paper number 14) for the respective positions of the appellant and the examiner.

OPINION

The obviousness rejection of claims 1 through 17, 19 and 21 through 24 is reversed.

The examiner recognizes (final rejection, page 3) that the admitted prior art does not teach "discharging the capacitor, or integrstor [sic, integrator], during 'off' times." According to the examiner, "Rhodes teaches such a discharging technique." Based upon the teachings of Rhodes, the examiner concludes (final rejection, page 3) that:

> One of ordinary skill in the art would have known to null the capacitor as Rhodes teaches to start at this zero level so as to fire the capacitor at known and constant times. One could not predict when the capacitor would fire if there was an undetermined amount of charge remaining on the capacitor.

As the title of Rhodes' integrator invention indicates, Rhodes is concerned with fast discharge of a capacitor when an input signal to the integrator changes polarity. A positive input signal on lead 10 to the integrator is inverted by amplifiers 14 and 18 (Figure 1). The negative output signal from inverter 18 charges capacitor 52, and the negative output from inverter 14 activates switch 46, but not switch 36 (column 2, lines 34 through 49). During this state, integration with capacitor 52 and integrating amplifier 18

occurs in a normal fashion (column 2, lines 50 through 52). When the input on lead 10 changes to a negative input signal, it follows that the outputs from the amplifiers 14 and 18 should change their states via inversion to positive output signals. Rhodes indicates that the output of amplifier 14 will "substantially instantaneously be positive," but "the output of amplifier 18 cannot immediately change to positive due to the storage of a charge in capacitor 52" (column 2, lines 52 through 58). The positive output from amplifier 14 activates switch 36 which in turn causes the capacitor 52 to discharge through resistors 48 and 50 (column 2, lines 59 through 63). "As soon as capacitor 52 is discharged, transistor 36 again turns OFF and the integration can proceed as normal" (column 2, lines 63 through 65). In short, Rhodes teaches discharge of capacitor 52 when an input signal on lead 10 changes polarity from positive to negative (column 1, lines 26 through 32).

Appellant argues inter alia that the discharge of the integration circuit in Rhodes is linked to switching of polarities, and not to the determination that: "means for selectively connecting the output is not connected" (brief,

page 6); “said switching means has disabled the stator coil” (brief, page 8); “the stator coil is disabled” (brief, page 10); and “the stator coil drive circuit is disabled” (brief, page 12). Based upon the teachings of Rhodes, the appellant concludes (brief,

page 13) that "the application of the Rhodes technique to the problem disclosed by the Appellant is merely hindsight." We agree.

DECISION

The decision of the examiner rejecting claims 1 through 17, 19 and 21 through 24 under 35 U.S.C. § 103 is reversed.

REVERSED

KENNETH W. HAIRSTON Administrative Patent Judge	)	
MICHAEL R. FLEMING Administrative Patent Judge	)	BOARD OF PATENT APPEALS AND INTERFERENCES
LANCE LEONARD BARRY Administrative Patent Judge	)	

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